Remarks/Arguments:

Claims 1 and 3-6 are pending in the application and stand rejected.

On page 2, the Official Action objects to claim 5 because the limitation of "*the predetermined voltage value Vd*" does not have sufficient antecedent basis. Thus, Applicants have amended claim 5 to depend on claim 4, because the recitation of "*a predetermined voltage value Vd*" is supported in claim 4. Withdrawal of the objection is respectfully requested.

On page 3, the Official Action rejects claims 1, 3, 4 and 6 under 35 U.S.C.§103(a) as being obvious over Rokuto (JP 2000-287373) in view of Sasaki (JP 04-042068). It is respectfully submitted, however, that the claims are patentable over the art of record for at least the reasons set forth below.

Applicants' invention, as recited by claim 1, includes features which are neither disclosed nor suggested by the art of record, namely:

> **...the determining unit is adapted to determine that the capacitor of the capacitor unit is abnormal based on ...**
>
> **... b) under-voltage abnormal condition when the difference between respective voltages on the high potential side of the capacitor and the adjacent series capacitor is lower than lower-limit voltage "Vb", ...**

Claim 1 relates to determining an abnormal capacitor in a series of capacitors. Specifically, an abnormal capacitor is determined when an under-voltage condition (the voltage across the capacitor) is below a certain voltage limit. Support for this feature can be at least found in Applicant's originally filed Application on page 5 lines 10-15 and furthermore in Fig. 2. No new matter has been added.

On page 4, the Official Action suggests that Sasaki discloses the under-voltage abnormal condition (b) as currently recited in claim 1. Specifically, the Examiner cites Sasaki's Fig. 2 where the voltage across capacitor 14 is compared to a reference threshold value of the comparator 16. The threshold value in Sasaki is set to a value lower than the capacitor voltage value. When the capacitor 14 deteriorates (begins to short out), the voltage will drop below the threshold and the output of the comparator 16 will reverse in polarity (thereby detecting an abnormal capacitor). This feature is at least supported on page 5 of Sasaki ("*comparison*

potential is usually set at a lower value as compared with discharge potential c, but as the capacity of the electrolytic capacitor 14 is decreased due to its deterioration, discharge potential c becomes lower than the comparison potential ... a deterioration is outputted").

In response to the Examiner's analysis of Sasaki, a telephone interview was conducted on April 6, 2009. Applicants' representatives would like to thank the Examiner for his time and effort spent on the telephone interview. During the telephone interview, Applicants' representatives explained the deficiencies of the Sasaki reference. Specifically, Applicants' representatives explained that if Sasaki's detection circuit was connected to a **series** of capacitors (as recited in Applicants' claim 1), then it would not be able to detect an under-voltage abnormal condition. In response, the Examiner stated that if Sasaki's circuit is duplicated at each respective capacitor in the series, the circuit would be able to detect abnormalities for each individual capacitor. Applicants' representative then explained to the Examiner that even if the circuit is duplicated, the circuit will not be able to detect the under-voltage abnormal condition because the circuit does not measure the voltage **across** each capacitor (the circuit compares the voltage on the positive plate of each capacitor to a predetermined threshold). The Examiner stated that in view of our explanation, that he now has a better understanding of feature (b) in claim 1. The Examiner furthermore stated that he would have to look more closely at the Sasaki reference.

Sasaki is deficient in suggesting feature (b) of Applicants' claim 1, because his detection circuit (even if duplicated) would not be able to detect an under-voltage condition for capacitors within a series of capacitors. For example, Applicants have enclosed explanatory figures 1a, 1b, 2a and 2b (not to be entered). In explanatory Fig. 1b, if capacitor C1 shorts, then amplifier A will not be able to detect an under-voltage condition, because capacitor C2 will take the full burden of the 10 volts. Also, as shown in the explanatory Fig. 2b, if the Sasaki circuit was duplicated (as suggested by the Examiner) for each of the capacitors, the first amplifier A1 would not detect the under-voltage abnormal condition due to the capacitor C1 shorting out. Furthermore, in Fig. 2b, amplifier 2 would incorrectly detect an over-voltage condition on capacitor C2 since C2 will take the full burden of the 10 volts (incorrectly determines an under voltage and over voltage condition).

Applicants' claim 1 is different than the art of record, because the under-voltage abnormal condition is detected by comparing the voltage across each of the capacitors in the series to a lower limit voltage ("*The determining unit is adapted to determine that the capacitor*

of the capacitor unit is abnormal based on ... b) under-voltage abnormal condition when the difference between respective voltages on the high potential side of the capacitor and the adjacent series capacitor is lower than lower-limit voltage "Vb" ") For example, as shown in at least Fig. 2, the voltages across each of the capacitors in the series 71-7N are measured. The difference between the voltages on the high potential sides of each capacitor and the adjacent capacitor is the voltage across the individual capacitor (for example, Vh2-Vh3 is the voltage across capacitor 72 in the series). This difference is compared to the lower-limit voltage Vb. If the voltage across the capacitor falls below the lower-limit voltage, than an abnormal capacitor is detected (the capacitor is shorting out). This feature is at least supported on page 5 lines 10-15 of the specification (*"a short failure can be determined when the voltage of a capacitor is lower than at least half of the above-mentioned value"*).

On page 6, the Official Action rejects claim 5 under 35 U.S.C. §103(a) as being obvious over Rokuto in view of Sasaki and in further view of Mitani (WO 2005/050811). Neither Rokuto, Sasaki nor Mitani, however, suggest feature (b) in Applicants' claim 1. Thus, the combination of Rokuto, Sasaki and Mitani is also deficient.

Accordingly, for the reasons set forth above, claim 1 is patentable over the art of record.

Dependent claims 3-6 include all of the features of claim 1 from which they depend. Thus, these claims are also patentable over the art of record for the reasons set forth above.

In view of the amendments and arguments set forth above, the above-identified application is in condition for allowance which action is respectfully requested.

Respectfully submitted,

Jacques L. Etkowicz, Reg. No. 41,738
Attorney for Applicants

RAE/so

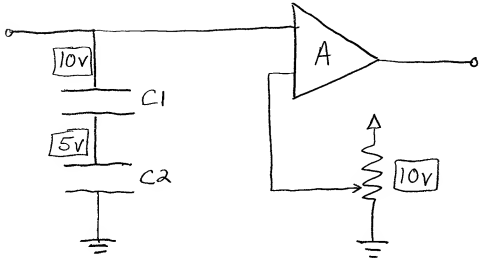
Enclosures: Explanatory Figs. 1a, 1b, 2a and 2b

Dated: May 21, 2009

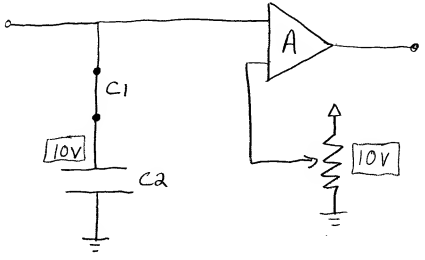
P.O. Box 980
Valley Forge, PA 19482
(610) 407-0700

425608

Explanatory Fig. 1a

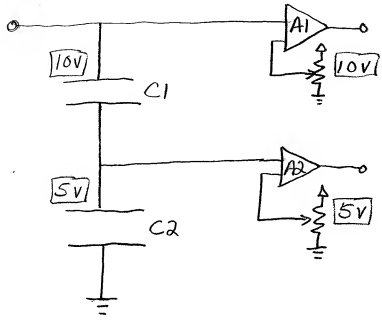


Explanatory Fig. 1b

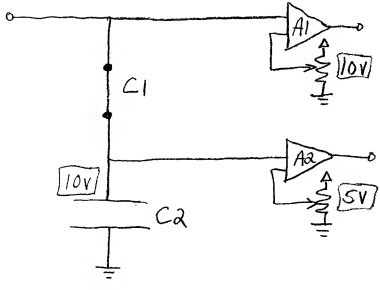


If C1 shorts, then C2 would burden the full 10 volts. Therefore, amplifier (A) would not be able to detect undervoltage of C1

Explanatory Fig. 2a



Explanatory Fig. 2b



If C1 shorts, C2 would burden the full 10 volts. Therefore, amplifier (A1) would not detect the undervoltage of C1, and amplifier (A2) would incorrectly detect an overvoltage of C2.